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ABSTRACT

Researchers tested 136 third through sixth graders with the reading subtests of the "Iowa Test of Basic Skills," reading tests constructed from appropriate graded reading materials, and an oral cloze test constructed from a short story whose language resembled the oral language of the children. They computed correlations (within each grade level) between all the variables, including combined oral-written cloze scores and the reading subtest, and found that 14 of the 16 correlations were significant. The results suggest that both reading and listening abilities increase with age, that oral language complexity increases slowly while written language steadily increases in complexity, that cloze procedures test reading achievement, and that reading and listening cloze test scores represent somewhat differing abilities. The results also demonstrate the potential value of cloze procedures for placing students in reading programs, for testing student reading comprehension, for measuring student oral language ability, and for diagnosing reading and oral language problems. (RL)

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A Comparison of Listening and Reading Cloze
Procedures and a Standardized Reading Achievement Test

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Title: A Comparison of Listening and Reading Cloze Procedures and a Standardized Reading Achievement Test

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Abstract: The study involves the administration of a listening cloze test, a reading cloze test, and the ITBS reading subtest to 136 students in grades 3, 4, 5, and 6. The reading cloze test was constructed from graded reading material; the listening cloze test was constructed from material closely resembling the oral language of children. This research was designed to answer the following questions: (a) are there differences in combined cloze scores for students at each grade level? (b) is there a difference between the two cloze scores? (c) is there an interaction between grade level and type of cloze task? (d) is there a relationship between reading cloze scores and standardized reading scores? (e) is there a relationship between listening cloze scores and standardized reading scores? and (f) are listening and reading cloze scores related? Analysis of the data shows significant (a) grade effect, (b) test effect, and (c) interaction effect. Results also are presented relating cloze scores to reading achievement. Finally, possible uses of the listening and reading cloze procedures by educational specialists are discussed.

Cloze procedure is defined as a method of deleting words from a message and then requiring the receiver of the message to supply appropriate words in place of the deletions. A cloze test is simply cloze procedure used in a testing situation rather than an instructional situation.

Previous work with the cloze procedure shows that it is a useful one from many points of view. Cloze tests are easily constructed and relatively easy to score. Performance on cloze tests relates to such factors as language development and reading achievement. In the past cloze research has involved mainly printed tests, requiring examinees to supply missing words from selected passages of prose. The research described here, however, involves two types of cloze tasks, one purely visual, and the other purely auditory. It was felt that if these two tasks were required of children within the appropriate grade span, valuable information might result. This information would relate quite directly to the development of both spoken and written language in children. It also might prove to be quite useful to psychoeducational diagnosticians, as well as special education and reading specialists.

This research was designed to obtain information relating to the following research questions: (a) are

there differences in combined reading and listening cloze scores for students in grades three, four, five, and six? (b) is there a difference between reading and listening cloze scores? (c) is there an interaction between grade level and type of cloze task? (reading vs. listening) (d) is there a relationship between reading cloze scores and standardized reading scores at any of the grade levels involved? (e) is there a relationship between listening cloze scores and standardized reading scores at any of the grade levels involved? and (f) is there a relationship between listening and reading cloze scores?

Related Research

Theory

Wilson Taylor (1953), who introduced cloze procedure, derived the term "cloze" from the concept of "closure" of gestalt psychology. "Closure" is defined as the tendency of persons to complete familiar patterns which are presented to them in incomplete form. Taylor applied this principle to language and theorized that persons will tend to supply a word in a language pattern where a word has been left out. Their ability to do this depends upon their familiarity with the language pattern presented to them. Taylor defined cloze procedure as:

A method of intercepting a message from a "transmitter" (writer or speaker), mutilating its language patterns by deleting parts, and so administering it to "receivers" (readers or listeners) that their attempts to make the patterns whole again potentially yield a considerable number of cloze units. (p. 416)

A cloze unit is defined as one attempt by a reader or listener to fill in a missing part of a message.

Taylor considers "total language context" to be an important aspect of cloze procedure. "Total language context" includes all verbal factors and non-verbal factors (such as past experience and intelligence)

which can influence language behavior.

Charles Osgood's theory of dispositional mechanisms also influenced Taylor's theories. These mechanisms include redundancy of language, transitional probabilities, and dispositional language habits. The simple statement "Man coming" can be expanded to the statement "A man is coming this way now". Redundant information exists in the second statement, but this statement follows a more typical and usable language pattern. Cloze procedure provides an estimate of the redundancy, or negative entropy, of a language unit (Taylor, 1956). Transitional probabilities means that certain words are likely to follow certain other words. For example, "Good _____" is more likely to be followed by "morning", or "evening" than "Thursday". Dispositional language habits are those habits or sets people develop which become automatic. When a person's language set matches the language sets of others, he or she is able to communicate easily.

Since Taylor first presented his theories, other researchers have expanded them or have presented criticisms of them. The gestalt aspect of his theories is the area generally criticized.

Rankin (1965a) presents a detailed review of research on closure. In relation to cloze procedure he considers three types of closure: perceptual,

cognitive, and motor. The research he cites suggests to him that "making cloze responses is primarily a cognitive rather than a perceptual task" (p. 73). For young readers, reading may be more of a perceptual task. They may fill in cloze blanks with "what looks right" whereas more mature readers may fill in cloze blanks with "what makes sense".

Anderson (1971) feels that gestalt theory is rather weak as an explanation of all that occurs in cloze procedure. Cloze procedure, he says, is a coding operation because the decoder (reader or listener) must reconstruct a mutilated message. Cloze procedure taps the "correspondence between the semantic and grammatical habit systems of encoders and decoders using the same language..." (p. 180). Three aspects of language are involved in cloze procedure: grammatical, lexical, and social-cultural.

Weaver (1965) also theorizes that cloze procedure is a cognitive rather than a perceptual task. For the receiver, cloze involves a shift from matching (decoding) to searching (encoding). Cloze involves two dimensions: horizontal, which is the language sequence of left to right as in reading, or time as in listening; and vertical, which implies the choice of words the receiver has for each deletion.

Weaver (1961, 1965) discusses the nature of

structural or functional words, and semantic or lexical words in messages. Structural words, he says, are not stored by the receiver. This phenomenon can be observed in the way a person retells something he or she has heard or read. The information may be recalled correctly (information would come from the lexical or content words of the original message) but the grammatic pattern has become that of the person retelling the message.

Readers, Weaver says, have an advantage over listeners for several reasons. Structural redundancy is higher in reading than in listening. Readers have spatial and sequential clues and can go back over what they have read; they have a permanent structure before them. Listeners cannot go back over what they have heard; they must attend to what is being said to them and rely on their own memories. Thus, listeners may process larger chunks of information and by necessity ignore details.

Best (1971) includes linguistic theories of guessing on the basis of cues in her discussion of the theory of cloze procedure. These cues may not occur in sequential order. She cites Goodman's "Reading: A Psycholinguistics Guessing Game".

Brown (Greene, 1968) relates cloze procedure to George Miller's six-stage model of reading:

1. Sample
2. Match--as in meaningful oral reading
3. Accept--grammatically. In cloze, this would imply matching the grammatical category of the deletion.
4. Interpret--semantically. In cloze, this would suggest justification for the scoring of synonyms because appropriate synonyms probably indicate a "reader's full language competence" (p. 122).
5. Understand--higher level comprehension such as irony, inference, and generalization
6. Belief

Brown suggests that cloze may not differentiate readers at the two highest levels of comprehension.

Bormuth (1973-74) presents these advantages of cloze tests: cloze studies are completely replicable, validity studies can be done, and the nature of the test eliminates bias in scoring.

Horton (1974-75) dealt in part with the construct and concurrent validity of cloze procedure. Defining the construct as "the ability to deal with the linguistic structure of the language; it is related to the ability of the subject to deal with the relationships among words and ideas" (p. 250), he determined that the construct validity of cloze procedure had been established according

to the results of his study. Concerning concurrent validity he says:

The variances shared among cloze tests, reading comprehension tests, reading gain tests, and verbal intelligence tests are probably a measure of the subject's ability to deal with the relationships among words and ideas. It is this common variance which accounts for the concurrent validity of cloze procedure with these other measures. (p. 250)

Bormuth (1968) in his review of validity studies of cloze procedure concludes that cloze procedure is a valid measure of reading comprehension, that it provides a valid measure of the difficulty of reading passages, it is valid and economical compared with alternative tests, and that readability scores can be used to select appropriate materials for students.

Methodology

Most cloze tests are designed with the first and last sentences of the passage intact, every 5th or 10th word deleted without regard as to the type of word it may be, with a total of about 50 deletions. Taylor (1956) suggests that at least 16 deletions are necessary for results to be meaningful. Other researchers have deleted every 7th or 12th word, or have deleted words in an irregular, random pattern. Others have preceded

the deleted section with an intact paragraph or inserted un mutilated paragraphs within the mutilated section.

Lord (1960) shows that the word deleted makes no difference in results as long as at least four words remain on either side of the deletion. The purpose of the test may determine the type of word to be deleted: any-word deletion for structural meaning, noun-verb deletion for lexical meaning (Rankin, 1957).

Culhane (1970) advises an every-tenth-word deletion pattern for factual material and an every-fifth-word deletion pattern for narratives. On a cloze listening test, Taylor (1956) deleted every 15th word. Rupley (1973) suggests that cloze tests with every 10th word deleted may be most appropriate, especially below the fourth grade. MacGinitie (1961) used different omission patterns--every third or sixth word to measure the effect of context in terms of distance. He concluded that intervals of six words allowed easiest restoration and that one word was more easily retrieved than two or four. Context of five words from a deletion appeared most effective.

Bormuth (1964) investigated the question of possible differences in different cloze test forms of the same reading passage, and whether the number of items included in the tests would affect the results. He found that differences in results of different cloze tests of the

same passages decreases as the number of items increases. He concluded that it may not be necessary to include more items, but that the investigator must consider this possible source of error. Page (1975) concluded from his study that a passage of 250 or more words is necessary for diagnostic purposes.

Greene (1965) compared a random cloze test with every 12th word deleted to a modified cloze test in which only content words (nouns, verbs, adjectives, and adverbs) were deleted. The deletions averaged 1 for every 12 words in the modified cloze test. The modified cloze test showed 86% effective items compared with 62% effective items for the random cloze test. Greene concludes that, although the modified cloze test is more reliable, its construction is far more time consuming and far less objective than the random cloze test. He suggests that the modified cloze test may be useful for individual diagnosis or placement.

More drastic variations of the original design of the cloze test have occurred, including the following examples. Hafner (1965) conducted a study using deletions of letters from words. He found a high correlation between this test and reading tests. Raynor and Kaiser (1975) varied the cloze test by changing shapes and/or initial, medial, or final letters of words and substituting similar or dissimilar shapes or letters. Results showed

that similar configurations are easiest to replace and initial mutilations are the most difficult to replace. An extreme variation of the cloze test was presented by Carver (1974). He compared a modified cloze test to a Reading Storage Test (RST). The RST is given only after the subject has read the material. It is constructed so that every other word retains only its initial letter. One of every five of these "partial" words has an incorrect first letter. The subject must choose the one that is incorrect. Carver theorized that the initial letter gives the reader a "chunk" of information to assist in retrieval of the correct word. He concluded that this type of test is as valid as the cloze test and more reliable than cloze in measuring gain in understanding during reading.

The subjects in Taylor's original study (1953) were college students. Many studies since then have used older students and adults as subjects. Cloze has been used successfully with younger students, even those in the first grade (Gallant, 1965; Ransom, 1968; Best, 1971; Kirby, 1971).

Most researchers advise scoring only exact-word-replacement as correct because of ease of scoring and because correlations remain the same although individual test scores are lower. Some researchers advise scoring synonyms as correct, particularly when the test is used

for individual diagnosis or instructional situations. Taylor (Greene, 1968) suggested that any scoring criteria can be set and presents the following ideas: exact-word-replacement, synonyms, correct part of speech, length of time it takes the subject to produce a word, and how often a subject attempts to answer.

The following studies are presented as examples of research which has explored scoring systems other than exact-word-only. Taylor (1953) in the first study using cloze procedure shows that scoring synonyms rather than exact-word-only gives a higher cloze score but that the degree of differentiation within the group remains the same. Ruddell (1964) compared the scoring of cloze tests by exact-word-replacement and exact-word plus synonyms. He concluded that both scoring systems are reliable. Six tests were written with an attempt to utilize the oral language pattern of the subjects who were fourth grade children. He suggests that a pattern written in language very familiar to the subjects may cause the subjects to replace deletions with synonyms rather than the original words because of the "subjects' familiarity with alternative responses" (p. 302). Synonym scoring correlated slightly higher with scores on a reading achievement test than did exact-word-only scoring. Bormuth (1965b) explored the question of scoring exact-word-only or exact-word plus synonyms. He concluded that exact-word-only was the best scoring method within

the limits of his study. White (1969) scored both exact-word-replacement and synonyms in his study of the relationship of cognitive understanding of a reading passage and the affective aspects of reading. Schoelles (1971) found that scoring exact-word plus synonyms is desirable. Fillenbaum, Jones, and Rapoport (1963) scored correct word and correct grammatical form (ignoring semantics). Hafner (1963) scored grammatically correct words and determined the ratio of connective words to context words. Cranny (1972-73) explored the question of whether scoring could be made easier by eliminating less discriminating test items from cloze tests. His study did not show this to be feasible, largely because the time involved did not significantly improve results.

How to determine meaningful criteria for cloze test scores has been the subject of much research. Unlike scores on multiple choice tests or other types of reading tests, cloze test scores rarely exceed 90% (Bormuth, 1967). Because cloze tests yield low scores compared with other tests, teachers and examiners are cautioned to explain carefully how a cloze test works to students and subjects in order not to discourage them (Carstens & McKeag, 1975).

Bormuth (1967) attempted to set criteria for judging individual cloze scores. Using fourth and fifth grade children as subjects, he determined that children

who scored 38% on a cloze test scored 75% on a multiple choice test of the same material. Correcting the multiple choice test for guessing, he determined that 43% on a cloze test would be comparable to 75% on a multiple choice test, generally considered an instructional reading level. An independent reading level of 90% on a multiple choice test would be comparable to 57% on a cloze test. Bormuth (1968) again attempted to determine criterion referenced scores on a cloze test which could be compared with oral reading and word recognition scores. The results were similar to his study of 1967. Scores of 44% and 57%, "rounded" to 45% and 55%, matched respectively with 75% and 90% on the oral reading test. Word recognition scores and cloze scores appeared not to be comparable. Bormuth (1969) conducted a third study on the relation of cloze scores and traditional reading comprehension test scores. This study examined the relationship of information gain for a student to the difficulty of a cloze passage for the student. The lowest criterion set was 35%, comparable to a 60% score on a multiple choice test after a student had studied the material on the test. Bormuth suggested that, realistically, this may be too frustrating a level for students. The study was attempting to measure the lowest level at which material selected for instruction would be readable. Before learning could take place, 35% success

was determined to be necessary.

Ransom (1968) using first through sixth grade children as subjects, and comparing cloze tests with informal reading inventories, determined the following scoring criteria: 50%--independent reading level, 30%--instructional reading level, and 20%--frustration reading level. Rankin and Culhane (1969) compared cloze tests to multiple choice tests to determine what would constitute an acceptable level of performance on cloze tests. Subjects were fifth grade children. A 75% score on the multiple choice test compared with 41% on the cloze test, and 100% on the multiple choice test compared with 74% on the cloze test. Mollach (1972) applied the scoring criteria of Rankin and Culhane (1969) to college freshmen. An instructional level of 75% on the multiple choice test compared with 40% on the cloze test, and an independent level of 90% on the multiple choice test compared with 60% on the cloze test. Feely's study (1975) determined ranges rather than single percentage scores for the three reading levels. Frustration range is 20% to 47%, instructional range is 30% to 47%, and the independent range is 43% to 61%. The means of each range, 33%, 39% and 54% respectively, correspond fairly closely to Bormuth's criteria of 35%, 45%, and 55% (Bormuth, 1968). In addition to a regular cloze test, Feely used a modified

cloze procedure he calls the Maze Technique, which provides the students with two alternatives for every deletion. Deletions occur at every seventh word.

Cohen (1975) explored the question of which scoring criteria could apply in the content areas. He concluded that differences in content areas can make a difference in which criteria to use for determination of instructional and independent reading levels. Jones and Pikulski (1974) attempted to establish scoring criteria by comparing cloze tests to an informal reading inventory and to a standardized reading test. They concluded that the cloze test is more accurate than the standardized reading test in that it matched more closely to results on the informal reading inventory. Results matched 70% to 80% with an informal reading inventory compared to 30% with the standardized test.

Corlett (1974) suggests a mathematical method for determining how well a high school class can handle various reading material. After a cloze test is administered (constructed from the material considered for use), an average percentage of success is computed for the group and then multiplied by 1.67 to get an average comprehension score. A result below 80% would indicate that the material is too difficult for the group.

Reading Comprehension

Several articles have appeared in research which

provide excellent summaries of studies dealing with the study and theories of reading comprehension and cloze procedure. Several are discussed here. Rankin (1965) summarized studies comparing standardized reading tests and cloze tests, cloze tests and multiple choice tests over the same material, and cloze tests used to measure reading gain. Most studies show fairly high correlations of cloze tests with standardized tests and multiple choice tests with the exception of the Kingston and Weaver (1963) study comparing cloze to the Davis Reading Test.

Louthan (1965) studied problem readers' performance on cloze tests. He concluded that problem readers perform better when structural words are not deleted from the material. Hafner (1964) attempted to determine whether students use information close to, or distant from, the deleted words to help them to fill in the blanks on a cloze test. He concluded that poor readers do not use all the contextual information available to them.

Jenkinson (1957) suggested interesting possibilities for the use of cloze procedure in diagnosis. She administered cloze tests to high school students and used the introspective-retrospective verbalization technique along with the tests. She determined that high performers recognize and use syntactic clues more

frequently than low groups and that better readers also show more verbal flexibility and fluency and appear to be actively involved in interpreting what they are reading.

Taylor (1956) reasoned that scores which show the readability level of material should also show the comprehension ability of the reader. He conducted a study with Air Force personnel to show success in learning and remembering, using a pre-cloze test and a post-cloze test. Post-test scores were higher, suggesting that cloze tests successfully measure what subjects learn between pre-tests and post-tests.

Rankin (1959) suggested using cloze testing diagnostically in a remedial reading setting. The students explain their answers, thereby giving the teacher clues to their reading problems and/or progress.

Bormuth (1963) compared cloze tests to multiple choice tests of the same passages. The tests were administered to fourth, fifth, and sixth grade children. A variety of comprehension tasks were included in the multiple choice tests to see if cloze could provide as good a measure of comprehension by correlating significantly with the multiple choice tests. He concluded that the cloze tests uniformly and validly test reading comprehension.

Gallant (1965) presented two types of cloze tests to children in the first, second and third grades. First grade children took a modified cloze test in that they

were given a choice of three words for each deletion. Second and third grade children took a regular cloze test which was scored two ways: exact-replacement-only and exact-replacement plus synonyms. She also studied the effect of longer sentences within the test. Results showed that the cloze tests were valid and reliable for all three grades. Longer sentences presented more difficulty except at the third grade level.

Bormuth and MacDonald (1965) determined that sensitivity to an author's style is important for good performance on a cloze test. Studying material first appears not to make a difference in performance.

Ransom (1968) compared reading levels of children in grades one through six using cloze tests and an informal reading inventory derived from material in basal readers. She concluded that the cloze test was valuable for children in grades two through six for obtaining independent and frustration reading levels. She suggested that a study using cloze could be constructed to analyze children's speech patterns at various ages.

Rankin and Overholser (1969) used cloze tests to study children's ability to use context clues in relation to their reading ability. Thirteen types of clues were considered, some of which were: preposition, main idea and supporting details, referral, synonyms, and series.

Kirby (1971) compared cloze test scores to scores from three standardized silent and oral reading tests.

Subjects were children in grades one through six. Results showed that the four tests did not give an equivalent measure of reading achievement for the total group, although results were comparable for the older, superior readers. The four tests apparently measure different aspects of reading and it is important for a teacher or examiner to determine the purpose of the testing before deciding which tests to use.

Robinson (1973) used cloze tests to select reading material for an adult remedial reading class. He found a close relationship between regular (random) cloze tests and standardized reading tests. The regular cloze test appears to be a better predictor of the reading ability of a group than the modified cloze test (noun-verb deletions) or a multiple choice cloze test.

Bormuth (1973-74) developed cloze tests from newspaper articles to determine the literacy levels of subjects.

Anderson (1974) attempted to measure the effects of instruction through the use of a pre-test, post-test, and a delayed test, all of which were cloze tests. He concluded that cloze tests can measure achievement and that the verbal ability of students clearly has an influence on their test performance.

Kingston and Weaver (1967) discussed the disagreement as to whether cloze procedure is a valid measure of

reading comprehension. MacGinitie (1961) claims that words can be restored without an understanding of the reading passage and that cloze may measure language redundancy rather than reading comprehension.

Carver (1973) concluded that successful cloze performance is a recall task and that cloze is relatively invalid as a measure of reading comprehension. This study is discussed further in the section on listening research.

Listening

Although the amount of research conducted in the area of listening skills and oral language using cloze procedure is meager compared to research in the areas of readability and reading comprehension, the following studies are pertinent.

Taylor (1956) presented radio newsscripts on tape to adult subjects. One set of scripts was "good"; the other was "bad" meaning that the sentences, although grammatically correct, were constructed in an awkward manner. There were 14 words between deletions. The subjects were better able to "cloze" on the "good" scripts.

Weaver (1961) studied oral cloze and found that lexical redundancy is about equal in silent reading and listening passages, but that structural redundancy is greater in silent reading. He concluded that structural meaning is carried better through reading than through

listening. Cloze scores on the reading tests were higher than cloze scores on the listening tests.

Goldman-Eisler (1961) theorized that pauses in speech indicate that a high information word will follow. She tested her theory by recording four sentences from spontaneous speech. Pauses were measured and information levels of words determined. The sentences were recorded with deletions and subjects were required to supply words. Results showed that longer pauses did occur before high information words and that these words were the most difficult for listeners to retrieve. Goldman-Eisler concluded that pauses not only indicate difficulty of word selection but also difficulty of thought and sentence construction.

Ruddell (1964) attempted to construct cloze tests which resemble the oral language of children. The children read the tests. He concluded that children perform better on cloze tests when the material resembles their oral language.

Carroll and Wilds (1959) presented subjects with oral passages with normal expression and passages with no expression. No significant differences were found.

Weaver (Greene, 1968) suggested that an oral cloze test might be used to test readers on material they have just read. Responses would be read into a tape recorder. Brown (Greene, 1968) suggested that a person's facility with oral language is more important to his or her success

inreading than is generally admitted to, and that success with cloze is probably very dependent upon this oral language facility. Ease with language may explain why subjects explain reasons for supplying particular words with statements such as, "It just sounded right."

Poole (1972) explored the following two theories: (a) oral middle-class language is less predictable than oral working-class language and (b) the uncertainty of middle-class oral language is higher than that of working-class oral language. Cloze tests were constructed from interviews with college freshmen from the middle and working classes. The messages were recorded. Each test had fifty structural deletions and fifty lexical deletions. Exact replacement was scored as correct. In addition, three scores were determined: a total score, a lexical score, and a structural score. For each message a redundancy score and an uncertainty score were derived. Results were significant for the first question: subjects were able to replace more deletions from working-class messages. Middle-class messages showed more uncertainty than working-class messages, but not at a significant level.

Garver (1973) presented 10 passages visually and auditorially at various rates using a regular cloze, a "chunked" test, and a revised cloze test. He attempted to get an understanding measure. He concluded that cloze is relatively invalid as a measure of reading comprehension.

Neville and Pugh (1974) conducted a study similar

in design to the pilot study for the present research. They theorized that there are similarities in the use of context in both reading and listening and that there is a positive relationship between listening and reading. However, because of the differences in reading and listening, the strategies and information utilized may be different. For instance, listeners cannot "go back over" what they have heard, nor can they "look ahead". The problems relating to differences between listening and reading were investigated by studying errors on cloze tests. The GAP Test which is a standardized cloze test (every 10th word, linguistically random, is deleted) was used for the reading cloze test and adapted for listening. The passages were recorded with a 10 second delay for each deleted word. The children were provided with a numbered answer sheet for the oral cloze test. Only exact replacements were scored as correct, and three classes of errors were determined: omissions, inappropriate words, and incorrect but linguistically appropriate words. Results showed that the listening cloze test was the more difficult task. On the listening test, most errors occurred at the beginning of sentences. When more information was available on both the reading and listening tests, more syntactically correct responses occurred. Children tended to use context clues when they could. On the

reading test, the children apparently adapted a non-sequential approach, but had to rely only on preceding information on the listening test.



Method

Subjects were 136 third through sixth grade children from a suburban elementary school. The children were matched within each grade level according to their reading comprehension scores on the Iowa Test of Basic Skills (ITBS). Vocabulary scores from the ITBS were used in the case of ties. After matching, the children in each grade level were divided into two groups, labeled Group 1 and Group 2, for a total of eight groups.

The reading cloze tests were constructed from graded reading material of the Reader's Digest Reading Skill Builder. This series was chosen because it is not used in the regular reading instruction of the children and because the stories contain high interest subject matter. Every effort was made to use stories with subject matter with which the children would have had some experience or with which they would have been familiar. The first and last sentences of each test were kept intact and every 10th word was randomly deleted for a total of about 50 deletions on each test.

The oral cloze test was constructed from a short story selected from the Sprint Magazine of Scholastic Magazines. The story was chosen because of its resemblance to the oral language of children of this age level. The first and last sentences of the test were kept intact

and every 20th word was deleted for a total of 14 deletions. The selection was recorded with a 20 second delay for each deletion. Each deletion was "cued" with a clicking sound. Numbered answer sheets with uniform lines for each deletion were given to each child. The word directly preceding and the word directly following each deletion were printed on the answer sheet before and after each blank so that the children would not lose their places. The same oral cloze test was administered to all children.

Group 1 of each grade level was administered the oral cloze test first. They were given one or two practice items to be sure they understood the task and were then instructed to write words in the appropriate blanks as they listened to the tape. They were told that they could change an answer if they wanted to and were also told that incorrect spellings would not count as errors. The administration of the oral cloze test took about 15 minutes per group.

Following the first administration of the oral cloze test, both Group 1 and Group 2 of each grade level were administered the reading cloze test in their classrooms. Answers were written on the test itself on lined spaces of uniform length. It was explained that they could change answers if they chose and that spelling errors would not count against them although they were allowed to ask the examiner how to spell a word. There was no

time limit for the test. Most children completed the test in 30 or 40 minutes although some children took much longer.

Finally, Group 2 of each grade level was given the oral cloze test. The procedure was the same as described above.

Exact replacement, synonyms, and appropriate words which did not change the meaning of the selections were scored correct. A percentage score was determined for each student.

Results

An equal number of answers from each cloze test was considered for the analysis of variance. Table 1 summarizes the analysis of variance performed on cloze scores. All effects are significant.

TABLE 1
ANOVA ON CLOZE SCORES

Source	df	MS	F	P
<u>Between SS</u>				
Grade	3	140.05	14.37	.01
Error A	132	9.75		
<u>Within SS</u>				
Tests	1	27.19	8.94	.01
Test x Grades	3	29.71	9.76	.01
Error B	132	3.04		

Third graders were lower on total cloze scores than children in any other of the grades tested. No other significant difference was found among total cloze scores by grade level. Total listening cloze scores were higher than reading cloze scores, ignoring grade level. Within the tests by grade interaction it was found that cloze scores on both the listening and reading tests were a positive linear function of grade level. The within

subjects portion of the interaction showed only one significant finding. Sixth graders scored higher on their listening cloze scores than on their reading cloze scores. There was no difference between tests at any other grade level involved.

Pearson Product-Moment correlations were performed on cloze scores and standardized reading comprehension scores from the ITBS for each grade level. Table 2 summarizes the correlations for cloze scores and standardized reading comprehension scores. All correlations are significant with the exception of the oral cloze score and the standardized reading comprehension score at the fourth grade level, and oral and written cloze scores at the fifth grade level.

TABLE 2
CORRELATIONS FOR CLOZE SCORES AND
STANDARDIZED READING COMPREHENSION SCORES

Grade	Variables	r	P
T h i r d	Oral Cloze and Reading	.57	.01
	Written Cloze and Reading	.57	.01
	Oral and Written Cloze and Reading	.64	.01
	Oral and Written Cloze (N=28)	.58	.01
F o u r t h	Oral Cloze and Reading	.25	NS
	Written Cloze and Reading	.64	.01
	Oral and Written Cloze and Reading	.56	.01
	Oral and Written Cloze (N=30)	.68	.01
F i f t h	Oral Cloze and Reading	.72	.01
	Written Cloze and Reading	.43	.01
	Oral and Written Cloze and Reading	.87	.01
	Oral and Written Cloze (N=40)	.30	NS
S i x t h	Oral Cloze and Reading	.55	.01
	Written Cloze and Reading	.56	.01
	Oral and Written Cloze and Reading	.61	.01
	Oral and Written Cloze (N=38)	.67	.01

Discussion

Results suggest an affirmative answer to the first three research questions: (a) are there differences in combined reading and listening cloze scores for students in grades three, four, five, and six? (b) is there a difference between reading and listening cloze scores? (c) is there an interaction between grade level and type of cloze task?

Results suggest that ability in both reading and listening increase as the children's ages increase. For all the children the listening cloze task appeared to be easier than the reading cloze task, particularly at the sixth grade level. It seems likely that at the sixth grade level oral language is fairly well established and that children are able to articulate fairly accurately the pattern and words of oral language as it is spoken to them. It must be remembered that the listening cloze test used here was purposely designed to imitate vocabulary, syntax, and word forms of elementary school children, and that written language continues to increase in complexity well beyond the sixth grade level. Sixth grade children might be expected to have mastered their own oral language. This study suggests that younger children, on the other hand, apparently have not reached this high level of mastery and may still be "learning"

their own language, at least in the sense that they are possibly not yet able to fully use all linguistic clues available to them. This possibility can have implications for the teaching of reading and the other language arts for children of this age. Apparently we cannot assume that all children deal with their own oral language in the same way and to the same extent. Instruction may be necessary in this area.

It seems that complexity of oral language continues to increase slowly; the extent of increase would be affected by the education, socio-economic class, and the experience of the individual. Written language, on the other hand, does not reach the same plateau that oral language seems to reach. Indeed, complex reading material is readily available whereas ordinary conversation remains comparatively simple. Children are continually exposed to more complex reading material as they progress through school. Scores on reading cloze tests would probably show the same distribution pattern at any age, as long as graded material is used, whereas scores on a listening cloze test would probably show mastery at higher ages, provided the material on the listening test is based on "real" oral language.

Results show that research questions: (d) is there a relationship between reading cloze scores and standardized reading scores at any of the grade levels

involved? (e) is there a relationship between listening cloze scores and standardized reading scores at any of the grade levels involved? and (f) are reading and listening cloze scores related? can be answered in the affirmative but with two exceptions: the oral cloze test at the fourth grade level is not significantly correlated to the standardized reading scores and reading and listening cloze scores are not related at the fifth grade level. This result is difficult to interpret particularly in light of the significant correlation at the third grade level between the oral cloze test and the standardized reading test. A more detailed analysis of the data, including the standardized reading test is suggested here.

In general, success on a listening cloze test can be considered to be predictive of success on a standardized reading test. Success on a reading cloze test also appears to be predictive of success on a standardized reading test. Cloze procedure, then, seems to test reading achievement. Combining results on oral and written cloze tests shows a higher correlation with the standardized reading test than either cloze test considered separately. However, it must be noted that the correlation of the combined cloze tests and the standardized reading test for the fourth grade was slightly lower than the correlation of the cloze reading test and the standardized reading test.

This research is limited in several respects. The oral cloze test contained only 14 deletions. Possibly a more dependable analysis could be made with 20 or 25 deletions. On the other hand, a much longer test might prove frustrating for children of this age. Also, it might prove valuable to administer the same reading test to all children in order to compare scores on one reading test and one listening test. Another possibility, presently being done, is to administer a reading and listening cloze test derived from the same material.

An oral cloze test seems to have potential for giving teachers and diagnosticians fairly objective insights into students' facility with oral language. Presently there are few methods available to accomplish this. Cloze procedure might be used diagnostically by reading specialists, speech and language therapists, and learning disability specialists so that a measure of students' oral language ability could be obtained. Oral cloze, although not comprehensive in the area of language, can give a quick measure and can minimize subjective evaluation often employed by diagnosticians due to a lack of testing instruments.

An analysis of the errors of learning disabled children who participated in this study compared with the errors of non-learning disabled children might

provide insights as to how learning disabled children function in the area of oral language as well as in reading.

It appears from this study that cloze procedure does measure reading ability. Because it is such an easy tool for teachers to use it would seem to be a valuable testing instrument for use in the schools. Results of this study suggest that cloze procedure has potential in the areas of placement in a reading group, testing comprehension of reading material, measuring oral language ability of groups and individuals, diagnosing individual reading problems, and diagnosing individual oral language problems.

It also appears that reading and listening cloze scores might represent somewhat differing abilities. Further analysis is being done in an attempt to gain relevant statistical information.

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